REMARKS

This Amendment and Response to Final Office Action is being submitted in response to the final Office Action mailed March 23, 2006. Claims 1-17 are pending in the Application.

Claims 1-15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Beser et al. (U.S. Patent No. 6,654,387) in view of Akatsu et al. (U.S. Patent No. 6,378,000) in further view of Sistanizadeh et al. (U.S. Patent No. 6,963,575) and in further view of Disney et al. (U.S. Patent No. 6,289,388).

Claims 16 and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Beser et al. (U.S. Patent No. 6,654,387) in view of Akatsu et al. (U.S. Patent No. 6,378,000) and in further view of Weiman (U.S. Patent No. 6,141,690).

In response to these rejections, the Claims have been amended herein, without prejudice or disclaimer to continued examination on the merits. These amendments are fully supported in the Specification, Drawings, and Claims of the Application and no new matter has been added. Based upon the amendments, reconsideration of the Application is respectfully requested in view of the following remarks.

Rejection of Claims 1-15 Under 35 U.S.C. 103(a) – Beser et al., Akatsu et al., Sistanizadeh et al., and Disney et al.:

Claims 1-15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Beser et al. (U.S. Patent No. 6,654,387) in view of Akatsu et al. (U.S. Patent No. 6,378,000) in further view of Sistanizadeh et al. (U.S. Patent No. 6,963,575) and in further view of Disney et al. (U.S. Patent No. 6,289,388). Claims 1 and 10 are independent claims.

Examiner states that Beser et al. teach the maintenance of a network address table and associating a time value with a network address, but that Beser et al. fail to teach or suggest an address mapping with identifier assignment. Examiner states that Akatsu et al., however, teach a method for address mapping in a network with identifier assignment. Examiner further notes that it would have been obvious for one skilled in the art to combine the use of the maintenance of a network address taught by Beser et al. with the method for address mapping taught by Akatsu et al.

Additionally, Examiner states that Beser et al. and Akatsu et al. do not teach or suggest "wherein the table maintained in each network element of the plurality of network elements is built automatically." However, Examiner states that Sistanizadeh et al. teach such limitation. Examiner further notes that it would have been obvious for one skilled in the art to combine the use of the maintenance of a network address table taught by Beser et al. and the method for address mapping taught by Akatsu et al. with the enhanced switching/routing taught by Sistanizadeh et al.

Furthermore, Examiner states that Beser et al., Akatsu et al., and Sistanizadeh et al. do not teach or suggest "advertising an association of the addresses corresponding to the first and second protocols, allowing each network element of the plurality of network elements to build the table." However, Examiner states that Disney et al. teach such

limitation. Examiner further notes that it would have been obvious for one skilled in the art to combine the use of the maintenance of a network address table taught by Beser et al. and the method for address mapping taught by Akatsu et al., and the enhanced switching/routing taught by Sistanizadeh et al., with the system taught by Disney et al.

Claim 1 has been amended to recite:

1. A method of automatically mapping network addresses of a first protocol for a plurality of network elements in a first network to network addresses of a second protocol, comprising the steps of:

defining a table maintained in each network element of the plurality of network elements;

wherein the table maintained in each network element of the plurality of network elements is built automatically;

assigning an address corresponding to the first protocol for each network element of the plurality of network elements;

assigning an address corresponding to the second protocol for each network element of the plurality of network elements;

associating the addresses corresponding to the first and second protocols within the table for each network element of the plurality of network elements, the second protocol being a different protocol than the first protocol;

advertising an association of the addresses corresponding to the first and second protocols, allowing each network element of the plurality of network elements to build the table; and

wherein each of the network elements utilize the first protocol addresses to transmit data destined for other network elements via the first network,

wherein the first protocol is Internet Protocol (IP) and the second protocol is Transport Identifier (TID), and wherein the addresses corresponding to the Internet Protocol (IP) are mapped to addresses corresponding to the Transport Identifier (TID).

Claim 10 has been amended to recite:

A method of associating a network address of a network element within a SONET ring network to a second network utilizing Internet Protocol addressing, the method comprising the steps of:

assigning a Transport Identifier address to each of a plurality of network elements within the SONET network;

assigning an Internet Protocol address to each of a plurality of network elements within the SONET network;

advertising an Internet Protocol address of a gateway node coupling the SONET network to the second network;

transmitting a message to the gateway node, the message including a Transport Identifier address of the network element to be accessed;

maintaining a table in the gateway node that specifies respective Transport Identifier addresses with associated Internet Protocol addresses for each network element within the SONET ring network;

wherein the table maintained in each network element within the SONET ring network is built automatically; and

transmitting the message to the network element whose Internet Protocol address corresponds to the transmitted Transport Identifier address.

In the present invention, Applicants disclose a system for mapping Internet Protocol (IP) addresses with a node's Transport Identifier (TID) address over the Data Communications Channel (DCC) of SONET networks, facilitating communication between an access data communication network and an embedded data communication network. Beser et al., conversely, teach a method and system for network address maintenance in a data-over-cable system, for use with cable modem termination systems and the cable modems, and in which a mapping is made between Internet Protocol (IP) addresses and the MAC addresses of cable modems. Although both Applicants and Beser et al. teach timing mechanisms, Beser et al. do not teach or suggest an address table automatically maintained in each network element, nor do Beser at al. teach or suggest advertising the mapping of addresses, allowing each network element of the plurality of network elements to automatically build the table. Additionally Beser et al. do not teach or suggest network elements utilizing the first protocol addresses to transmit data destined for other network elements via the first network.

Examiner specially states that Beser et al. teach the maintenance of a network address table (Beser et al., Col. 3, lines 13-15). Although Beser et al. suggest that "the method and system of the present invention ***may provide for the maintenance of a***

network address table such as an Address Resolution Protocol table" (emphasis added), the address table is maintained in the cable modem termination systems (CMTS) 12 and the cable modems (CM) 16 (Col. 25, lines 21-23). ***In the present invention, however, the mapping table is automatically "maintained in each network element of the plurality of network elements." The present invention updates the mapping table of IP and TID addresses automatically and maintains those addresses in each network element.***

Additionally, as noted by Examiner, Beser et al. fail to teach an address mapping with identifier assignment. Examiner states that Akatsu et al. make up for this deficiency. Akatsu et al. teach a method for address mapping in a home entertainment network system, such as an IEEE 1394 home based entertainment network. Although Akatsu et al. teach a self identification packet comprised of a bus identifier and a physical identifier (Col. 11, lines 1 – 8), Akatsu et al. do not teach or suggest assigning an address corresponding to the Internet Protocol (IP) for each network element of the plurality of network elements and assigning an address corresponding to the Transport Identifier (TID) for each network element of the plurality of network elements, as does the present invention.

Akatsu et al. teach the creation of the mapping table by the IEEE 1394 driver when a bus reset occurs or by express instruction from a user (Col. 10, lines 33 – 55). No bus reset is required, nor is an express instruction from a user required, in the present invention, which automatically builds the mapping table. On the contrary, the various network nodes advertise address pairs to build the mapping table in each network element.

Furthermore, Akatsu et al. teach that the bus_ID and physical_ID fields that comprise the self identification field must be extracted (Col. 11, lines 1 – 5), an act which is performed by a managing node (Col. 10, lines 45 – 48, and Figure 14; although Akatsu

et al. state "Fig. 22" in Col. 10, line 45, it is assumed that Fig. 14 is intended since there are only 14 figures and since the reference numerals are located on Fig. 14). It is an embodiment of the present invention to avoid having to manually create a mapping table in a gateway network element as is known in and done in the prior art. Thus, the present invention is clearly distinct from both Beser et al. and Akatsu et al. The deficiencies of Beser et al. are not remedied by Akatsu et al.

Examiner states that where Beser et al. and Akatsu et al. lack, Sistanizadeh et al. teach "wherein the table maintained in each network element of the plurality of network elements is built automatically." However, Sistanizadeh et al. do not teach or suggest a "table maintained in each network element" as does the present invention. Instead Sistanizadeh et al. teach that "***[e]ach data switch operating as a learning bridge maintains an address table***, associating the address of each device with the identifier of the port of the switch on which the device resides." (Col. 13, lines 35-39). Thus, it is only each data switch that operates as a learning bridge that maintains an address table. This is not the same as being maintained in each network element.

Additionally, Sistanizadeh et al. do not teach or suggest assigning an address corresponding to the Internet Protocol (IP) for each network element of the plurality of network elements and assigning an address corresponding to the Transport Identifier (TID) for each network element of the plurality of network elements, as does the present invention of Semaan et al. Rather, Sistanizadeh et al. teach "associating the address of each device with the identifier of the port of the switch on which the device resides." (Col. 13, lines 35-39).

Furthermore, Sistanizadeh et al. teach a switch that learns associations from monitoring the source of the MAC addresses of frames received on each port. (Col. 13, lines 38-41). Again, this is dissimilar from the method of the present invention which assigns an address corresponding to the Internet Protocol (IP) for each network element

of the plurality of network elements and assigns an address corresponding to the Transport Identifier (TID) for each network element of the plurality of network elements.

Examiner states that where Beser et al., Akatsu et al., and Sistanizadeh et al. fail to provide "advertising an association of the addresses corresponding to the first and second protocols, allowing each network element of the plurality of network elements to build the table," Disney et al. do.

Disney et al. teach methods and an apparatus that "enable a first network protocol provider, executing on a first computer system and having a first network address associated therewith, and a second network protocol provider, executing on a second computer system and having a second network address associated therewith, to both send and receive data over a network via a same network interface card installed on the second computer system." (Col. 5, line 60 – Col. 6. line 2).

Disney et al. merely teach the use of a network interface card in a manner that allows it to be shared between the first and second network protocol providers, such that two heterogeneous computers with differing protocols may communicate with one another via a single network interface card. However, Disney et al. do not teach or suggest advertising an association of the addresses corresponding to the first and second protocols, allowing each network element of the plurality of network elements to build the table, as does the present invention. Instead, Disney et al. teach communication between a first computer system and a second computer system wherein each has a protocol provider, wherein each protocol is different, and wherein there is a shared network interface card that is located in the second computer system.

Although Disney et al. teach that "[d]ata received from the network with a broadcast address is routed to both the first (via the interconnection) and second network protocol providers. Outgoing data from each network protocol provider is routed to the

network via that same network interface card" (Col. 6, lines 20-25), no mention is made of advertising an association of the addresses corresponding to the first and second protocols, as does the present invention. Only a "broadcast address" is mentioned. Broadcasting data to two separate computer systems with distinct network protocol providers (as in Disney et al.) is not the same as advertising an association of the addresses corresponding to the first and second protocols (such as a TID/IP address pair) to each of the plurality of network elements as disclosed in the present invention. Furthermore, the present invention states that "advertising an association of the addresses corresponding to the first and second protocols, ***allowing each network element of the plurality of network elements to build the table.***" (Emphasis added.). In fact, in Disney et al., it is taught wherein ***"the router creates and maintains a table containing the network addresses of the first and second network protocol providers."*** (Claim 8, emphasis added.).

Thus, Beser et al., Akatsu et al., and Sistanizadeh et al. fail to provide "advertising an association of the addresses corresponding to the first and second protocols, allowing each network element of the plurality of network elements to build the table," and Disney et al. fail to remedy that deficiency.

Therefore, in view of the above, Applicants respectfully submit that Beser et al. fail to teach each and every feature of independent Claims 1 and 10 as required, and that Akatsu et al., Sistanizadeh et al., and Disney et al. fail to make up for deficiencies of Beser et al.

Claims 2-9 are dependent claims either directly or ultimately dependent on Claim 1. Claims 11-15 are dependent claims either directly or ultimately dependent on Claim 10. Based on the same unique and novel features of the present invention as described above, namely that Claims 1 and 10 have unique and patentable novel features, it is respectfully asserted that these dependent claims are now in condition for allowance.

Therefore, Applicants submit that the rejection of Claims 1-15 under 35 U.S.C. 103(a) as being unpatentable over Beser et al. in view of Akatsu et al. in further view of Sistanizadeh et al. and in further view of Disney et al. has now been overcome and respectfully request that this rejection be withdrawn.

Rejection of Claims 16 and 17 Under 35 U.S.C. 103(a) – Beser et al., Akatsu et al., and Weiman:

Claims 16 and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Beser et al. (U.S. Patent No. 6,654,387) in view of Akatsu et al. (U.S. Patent No. 6,378,000) and in further view of Weiman (U.S. Patent No. 6,141,690).

The above arguments with regard to Beser et al. apply with equal force here, and these deficiencies are not remedied by Akatsu et al. or Weiman.

Claim 16 is a dependent claim dependent on Claim 1. Claims 17 is a dependent claim dependent on Claim 11. Based on the same unique and novel features of the present invention as described above, namely that Claims 1 and 10 have unique and patentable novel features, it is respectfully asserted that these dependent claims are now in condition for allowance.

Therefore, Applicants submit that the rejection of Claims 16 and 17 under 35 U.S.C. 103(a) as being unpatentable over Beser et al. in view of Akatsu et al. and in further view of Weiman has now been overcome and respectfully request that this rejection be withdrawn.

CONCLUSION

Applicants would like to thank Examiner for the attention and consideration accorded the present Application. Should Examiner determine that any further action is necessary to place the Application in condition for allowance, Examiner is encouraged to contact undersigned Counsel at the telephone number, facsimile number, address, or email address provided below. It is not believed that any fees for additional claims, extensions of time, or the like are required beyond those that may otherwise be indicated in the documents accompanying this paper. However, if such additional fees are required, Examiner is encouraged to notify undersigned Counsel at Examiner's earliest convenience.

Respectfully submitted,

Date: May 22, 2006

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